

ABSTRACT

The present invention is directed toward a system for monitoring a region of a person to determine a plurality of physiological characteristics, including blood oxygenation levels, blood gases, respiratory rates, and pulse rates. The monitored region includes at least a portion of a dermal layer extending over anywhere on the chin, including at least one of the subject's mandible, symphysis, mental protuberance, or incisive fossa. The system comprises a sensor having at least one light emitting source and at least one detector. Preferably, the sensor is positioned on the region being monitored and is secured to the region being monitored by a securing means. Optionally, the securing means comprises a strap that is adjustable and in physical communication with the housing. In one embodiment, the strap is attached to an apparatus and the apparatus is capable of being secured to a head of the subject. The apparatus can be attached to a helmet and used for at least one of a military, sporting, construction, security, policing, or firefighting application.